



## SUBSTITUTE SPECIFICATION

### Ladder-type and Blue Light-Emitting Polymer with Excellent Thermal Stability

#### FIELD OF THE INVENTION

The present invention relates to luminescent polymer, specifically ladder-type  
5 and blue light-emitting polymer with excellent thermal stability, which are prepared  
by polymerization of blue luminescent monomer or grafting blue luminescent  
monomer to backbone polymer.

#### PRIOR ART

Polymer has been generally classified as insulator. Recently, development of  
conducting polymers such as polyaniline, polypyrrole and polythiophene has  
provided high conductivity as same as metal. These polymers have advantages over  
metal in aspects of light weight and processability.

15 The conjugated polymers with the electrical and optical characteristics have  
been used for the applications of anti-static materials, sensors, electrodes, transistors,  
light-emitting materials, solar cell, smart cards, electronic newspapers, and other  
display devices. The luminescence polymer has been extensively developed since the  
electroluminescence with poly(1,4-phenylenevinylene) was reported in Cambridge  
20 group in 1990 (Burroughes, J. H.; Bradley, D. D. C.; Brown, A. R.; Marks, R. N.;  
Mackay, K.; Friend, R. H.; Burn, P. L.; Holmes, A. B. Nature 1990;347:539). The  
features of luminescence polymer are, in comparison with the inorganic materials,  
light weight, thin, self-luminescent, of low threshold voltage. These polymers also  
provide fast switching velocity, easy processability, low production cost, low  
25 dielectric constant, and most of all, the advantage of easy fabrication and controllable  
electrical and optical properties by the modification of their molecular structures.